A Nanotube Surface Reinforced Graphite Fiber Exhibiting Significantly Enhanced Properties, Phase II

Completed Technology Project (2006 - 2008)

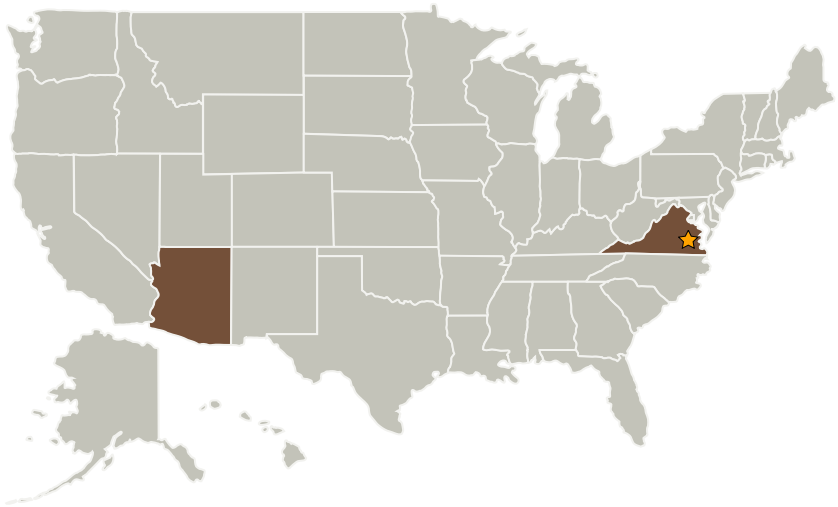
Project Introduction

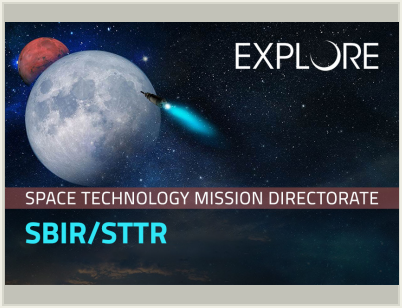
The completed Phase I work was directed at the application of nanotechnology to graphite/epoxy composites. A novel approach to the application of the nanotubes onto the carbon fiber surface was investigated. As a result, a very significant increase in compressive strength of 120% was attained, compared with 20% reported in the literature. The Phase II builds on the success of the Phase I. It will address the key issues of scale-up, reproducibility and component fabrication. The batch fiber coating process employed in the Phase I will be replaced with a continuous fiber coating process. Manual pre-pregging of the Phase I will be replaced with a continuous pre-pregging process. Specific CEV type composite applications will be identified. Subsequently, a cost/benefit ratio for CEV will be provided.

Anticipated Benefits

Potential NASA Commercial Applications: The non-NASA commercial applications include: commercial aircraft, racing cars, speed boats and sporting goods.

Primary U.S. Work Locations and Key Partners





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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
MER Corporation	Supporting Organization	Industry	Tucson, Arizona

Primary U.S. Work Locations	
Arizona	Virginia

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

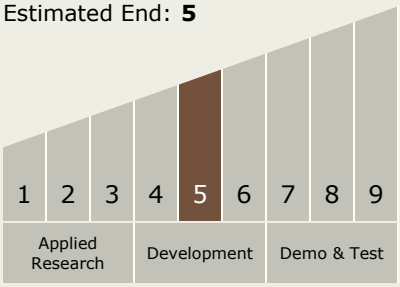
Carlos Torrez

Principal Investigator:

James C Withers

Technology Maturity (TRL)

Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.1 Software Development, Engineering, and Integrity
    - TX11.1.5 Architecture and Design of Software systems